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ABSTRACT

This guide provides information to help parents decide whether their child with attention deficit hyperactivity disorder (ADHD) should take methylphenidate hydrochloride (Ritalin). Information is provided in a question-and-answer format on various concerns, including: the meaning of ADHD, whether Ritalin is overprescribed, when this medication is appropriate and who can prescribe and monitor it, what research indicates about the effects of Ritalin, how to know if the medication is working, the effects of medication on family functioning, different forms and dosages of Ritalin, the effects of Ritalin on attention span and impulse control, effects of medication on social behavior and academic performance, age at which the medication can be started and whether it helps adults with hyperactive behavior, documented side effects of Ritalin, and unusual negative results that have been reported about Ritalin use. Points for the parents to consider are summarized: the effects of Ritalin can be linked to the adequacy of dosage and regularity of intake; symptoms return once the medication wears off; along with the medication, behavior management and parent education or counseling are important; the medication may facilitate the application of behavior management to improve control over ADHD symptoms; and at some point medication will be stopped. (Contains 31 references.) (SW)

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A Parent Guide to understanding the effects of Ritalin®

(Methylphenidate Hydrochloride)

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Richard Brozovich, Ph.D.
Thomas Harwood, Sp.A.

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A total of 800 copies were printed and distributed to the local school districts. A total of 1000 copies were printed in the second and third printing. Additional copies may be obtained by contacting Oakland Schools' Psychology Clinic (810-858-1951). The cost for copies of the guide are:

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A Parents' Guide to understanding the effects of Ritalin®

(Methylphenidate Hydrochloride)

When a parent has to face the reality of having a child who has an Attention Deficit Hyperactivity Disorder (ADHD) one of the first questions they may ask is regarding the best method of treatment for ADHD. When medication is recommended, comments such as **"I don't want to give medication to my child"** or **"I don't want him/her to become a drug addict"** are very common.

Nobody should judge those who refuse to provide medication for their children with ADHD. If a doctor tells me that I have to provide medication to my child to help with his ADHD symptoms my first reaction might be...
"I can help my child without using medication." However, if after numerous attempts, I don't get positive changes in behavior I might reconsider the idea of using medication. Perhaps at this point I would want a second and maybe a third professional opinion.

Medication should never be the first or the only option in the treatment of ADHD children. Behavior management should commonly be the first choice. In some cases, an approach that uses both a behavior management program and medication may be a more effective means of treating the child with ADHD.

By behavior management we mean the parents using methods such as:

- rewarding compliant behavior
- telling the child how to handle a situation
- helping the child organize his/her schoolwork
- being firm and consistent.

We would like to dedicate this booklet to all parents who have struggled in their attempts to help their hyperactive children to do the best they can. This booklet was especially written for parents who face the decision of whether to provide medication to their children who have ADHD. By presenting some of the facts about Ritalin we hope that parents will be able to better decide whether or not to use this medication.

NOTE: A number in parentheses refers to a particular article or study listed at the end of this booklet under REFERENCES.

Responsibility for the accuracy of factual material and for the opinions expressed in this document rests solely with the authors.

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Richard W. Brozovich, Ph.D., is the director of the Psychology and Learning Clinic at Oakland Schools. Dr. Brozovich participated in developing guidelines to assist school psychologists and school social workers in Oakland County who are involved in the assessment of students with ADHD.

Thomas Harwood, Sp.A., is the behavior management consultant at Oakland Schools. Mr. Harwood has served as a consultant to the Michigan Department of Education, and more recently, contributed to the establishment of the State Board of Education guidelines for behavioral interventions within special education. He is currently serving as a member of an established task force for the Michigan Department of Education in the development of recommendations for serving the Attention-Deficit Hyperactivity Disorder student in the general education and/or special education setting.

Current data from child guidance clinics indicates that 30-40% of their referrals involve the evaluation and treatment of children suspected of having ADHD. When a parent is attempting to deal with and understand the diagnosis of ADHD, they may have several questions they would like to raise with the clinician assigned to the case. This document is intended to describe a typical question and answer scenario that may occur between a clinician and the parent. It is the hope of the authors to generate and respond to commonly asked questions and provide adequate and helpful information.

My child has been diagnosed by a clinician who said he/she has ADHD. What does this mean?

ADHD or Attention Deficit Hyperactivity Disorder is a problem experienced by approximately 5 % of school age children. Because most of these children do not outgrow the problem we also have a large number of adults showing similar symptoms. The basic symptoms include short attention span, impulsivity, and hyperactive behavior. Along with these symptoms we often observe low self-esteem, the tendency to not finish projects, and additional disruptive patterns of behavior.

But what about those who act just like the way you described but without hyperactivity?

Their problem is called ADD without hyperactivity or ADD, undifferentiated type.

Should all children who have ADHD be on medication?

NO...
To provide medication to a child is a very serious decision to make. Just because a doctor recommends medication, a parent does not have to follow that recommendation. No one can take care of a child the way a parent is able to. As parents, our mission is to provide the best care we can for our children. However, sometimes we are not sure about what is best.

Yes, that is true. How do we know if medication is appropriate?

Sometimes it is hard to say. Constant failures in the use of behavior management can be a good indication that medication should be considered. If we talk with an experienced professional we can get help with this decision.

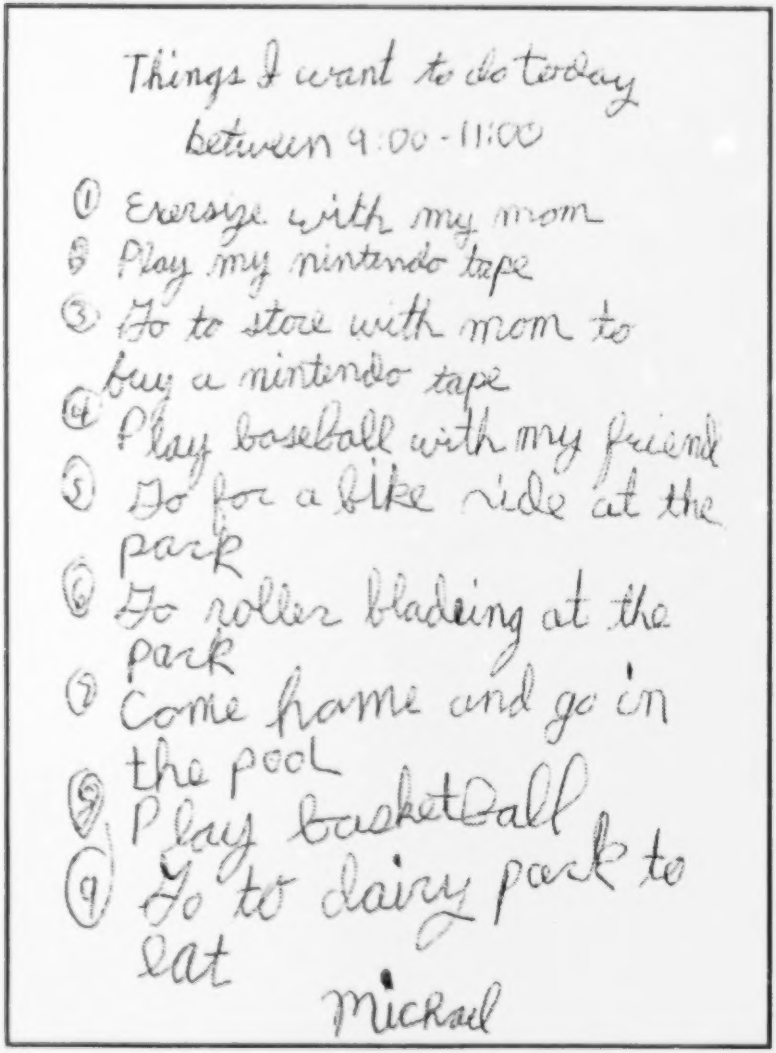
I have heard so many bad things about Ritalin. So many people talk about the terrible things that it does.

Some people have been very critical but, just because they speak out, does not mean they are right.

That's true, but on TV and radio, people talk just about the negative aspects of Ritalin.

People on talk shows are not always specialists on the topic. Often they are invited on these shows because they grab attention by shaking things up. There is no way to prove what they are saying and many times they may not give us the whole story.

Many problems with ADHD children result from their poor time management. Michael gives the best example by telling us about his plans for Saturday morning between 9:00 A.M. and 11:00 A.M.


Things I want to do today
between 9:00 - 11:00

① Exersize with my mom
② Play my nintendo tape
③ Go to store with mom to buy a nintendo tape
④ Play baseball with my friend
⑤ Go for a bike ride at the park
⑥ Go roller blading at the park
⑦ Come home and go in the pool
⑧ Play basketball
⑨ Go to dairy park to eat

Michael

Are you telling me that what I have heard on those talk shows is not true?

The point is...if you need information about a legal matter, it is best to consult with a lawyer...if you need information about your car, talk with your mechanic. Then, if you want information about medication, talk with a specialist who knows about medication.

I have to agree with you on that point. But do you think that it is true that too much Ritalin is being prescribed?

First of all, you should know that when a specific medication produces positive results, people tend to use it and misuse it. According to the scientific literature, more than 600,000 children annually; or between 1% to 2% of the school-age children receive this medication [1]. I am sure that in some of these cases the medication is being misused.

When is this medication appropriate and who can prescribe it?

The proper use of this medication first requires a good diagnosis and adequate supervision when it is used. This medication has to be prescribed by a physician who knows about ADHD. Other professionals, such as psychologists, social workers, counselors, and educators, may provide useful information required by the physician before prescribing medication. However, these professionals are not qualified to prescribe the medication or to stop it once recommended.

That's interesting. Now tell me when is this medication recommended and for what purpose?

According to the Physician's Desk Reference (PDR)[2] Ritalin is indicated for Attention Deficit Disorders... "Ritalin is indicated as an integral part of a total treatment program which typically includes other remedial measures (psychological, educational, social) for a stabilizing effect in children with a behavior syndrome characterized by the following group of developmentally inappropriate symptoms: moderate-to-severe distractibility, short attention span, hyperactivity, emotional lability, and impulsivity." The PDR suggests that... "Ritalin should be periodically discontinued to assess the child's condition."

Was this type of medication always widely accepted?

Despite an initial hesitation in the use of Ritalin to control some behavioral problems in children, the use of stimulant drugs (Ritalin is the one most prescribed) has become popular due to their effectiveness.

What does the Food and Drug Administration (FDA) have to say about Ritalin?

Ritalin was approved for human consumption by the FDA on December 5, 1955. The Food and Drug Administration has approved three stimulant drugs as safe and effective for ADHD[3]. These drugs are methylphenidate (Ritalin), dextroamphetamine (Dexedrine), and pemoline (Cylert). This same document indicated that, according to the National Institute of Mental Health, stimulant treatment in childhood does not increase the risk of drug or alcohol abuse in later years.

Is it really effective?

Since the 60s, when the use of Ritalin became popular in the treatment of hyperactive children, a large number of articles and books have been written. Reports describing the ADHD children's response to Ritalin vary greatly from one publication to another regarding both the number of children who show improvement and the characteristics improved [4].

Is there any research documenting the effects of Ritalin?

Yes, there are many studies reporting the effects of Ritalin.

The following studies used Ritalin in its generic form called methylphenidate. You would read the name of methylphenidate in all of the following studies. Remember that methylphenidate is the generic name for Ritalin.

Each child with an Attention Deficit Hyperactivity Disorder is unique in the variety and severity of his/her symptoms. In general, results indicate that methylphenidate has a major effect in improving attention and decreasing activity levels [4][6][23]. These effects are equally significant in boys and girls with ADHD [27]. The research also indicates that using Ritalin often results in the child showing improvement in peer interactions, play activities, social behavior, and compliance with rules and instructions. This often results in improved social-emotional relationships with adults and peers. Also, improvement in academic performance is often seen especially on independent written work. We will talk more about each of these effects later on.

How do we know if the medication is working?

Many times the changes experienced after taking this medication are such that even peers judged hyperactive children as less disruptive when they were taking methylphenidate [28].

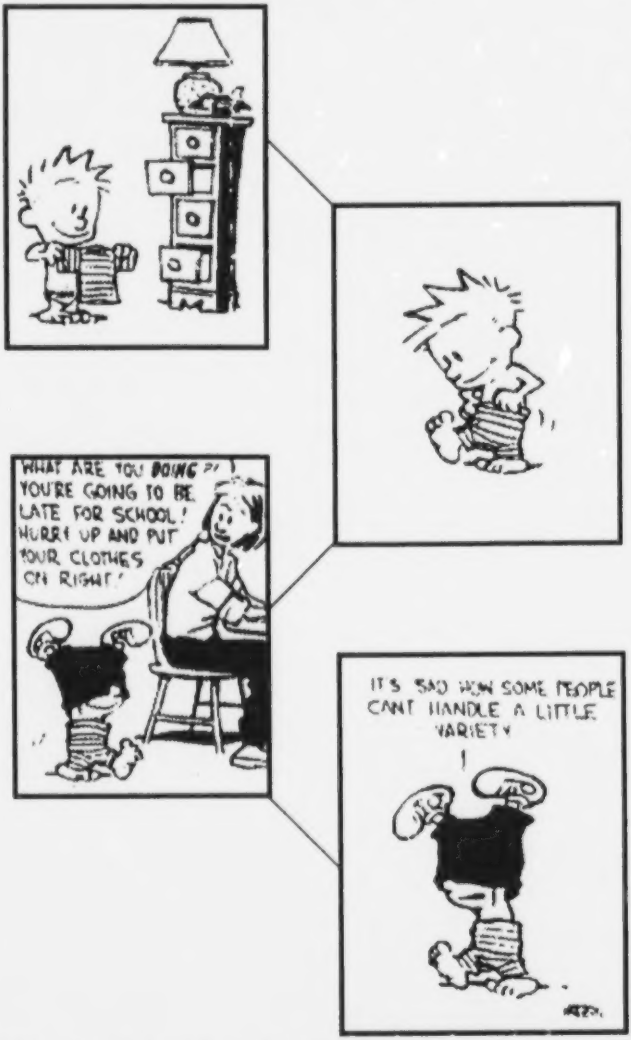
These changes may be observed in a broad variety of areas and settings in the child's daily life. Parents and teachers usually provide valuable feedback related to the medication effects. Specific behavior checklists have been developed to help document whether the medication is working.

Did you say that this medication helps to improve attention?

Many of the studies done on the effects of methylphenidate indicate improved attention span [5][6][15][23][24]. This improvement can also be observed in academic performance. Improvement in attention span benefits the student who can pay attention to what the teacher is saying. This student is more apt to remember to bring books back home. This student is able to remember to turn in assignments. As a result the student will experience improvement in academic performance.

> *...If medication is used to control ADHD symptoms there should be systematic observation of behavioral symptoms and feedback given to the physician.*

Calvin and Hobbes


WHAT ARE YOU DOING?! YOU'RE GOING TO BE LATE FOR SCHOOL! HURRY UP AND PUT YOUR CLOTHES ON RIGHT!
IT'S SAD HOW SOME PEOPLE CAN'T HANDLE A LITTLE VARIETY

Calvin and Hobbes reproduced with permission of Universal Press Syndicate. Copyright Watterson, 1989.

What about home? Do studies talk about the effects of medication on how the family functions?

Some studies report improvement in family interaction. Significant short-term improvement has been found in interpersonal relations established by ADHD children while taking methylphenidate [8]. The most significant changes were:

- improvement in the affective tone of the parent-child relationship
- increase in the expressed maternal warmth
- less maternal criticism
- less negative encounters with siblings.

Significant improvement in the quality and affective tone of the family interaction has been observed as a result of the reduction of the activity level and the child's response to parental direction [9].

Methylphenidate treatment also results in improvement following instructions, therefore less conflict occurs with their mothers about rules and commands [25][26].

Can young children benefit from this medication?

Preschoolers receiving methylphenidate have shown some of the same benefits as older children [26]. However, medication of this type should not be used with preschoolers unless the problems are severe and all other possible solutions have been tried.

I have no idea what this medication looks like. Is there more than one form?

Ritalin comes in three different doses; 5, 10, and 20 milligrams. The 5 milligram form is yellow, the 10 milligram form is light blue, and the 20 milligram form is pale yellow. The effects of these pills last between 2 1/2 to 4 hours. Ritalin also comes in 20 milligrams sustained-release (Ritalin-SR) which lasts between 6 1/2 to 8 hours.

Is there any difference between these two forms?

One study investigated the relative effects of methylphenidate, 10 mg, administered twice a day, and sustained release Ritalin SR-20 [10]. It showed that both medications improved the numerous measures of disruptive social behavior, and negative interaction with peers. Analysis suggested that SR-20 was not as effective as a 10 mg. dose given twice daily.

What are the effects on impulsive behavior?

Positive results have been obtained regarding impulse control [6][11] as well as social behavior [11].

Studies indicate a positive effect on impulsivity in both clinical and classroom settings [6][7]. Improvement in classroom settings (reduction of impulsiveness) was found with medication, under all doses.

The change in impulsive behavior can be dramatic. A child who acts impulsively tends to be rejected by other children. They tend to be "grounded" by teachers and parents. All these reactions to the impulsivity cause a drop in self-esteem. By having positive effects on controlling impulses, Ritalin may be indirectly improving self-esteem in ADHD children.

What about the effects on social behavior?

Reports indicate that peer relationships and general social behavior are improved with methylphenidate treatment [6].

A study reported improvement in social behavior and cognitive performance working with 47 reading-disabled children diagnosed as having ADHD (with children between the ages of 7 and 13) [11] . Results indicated less aggressiveness, hyperactivity, classroom disturbance, impatience, and disrespect-defiance behavior.

What can you say about academic performance?

The research has indicated that for some students academic performance has improved following methylphenidate treatment [5].

One study evaluated the effects of methylphenidate on academic and social behavior in the classroom for 29 children with attention deficit hyperactivity disorder [12]. The targets of treatment were performance in grade-appropriate reading comprehension, work books and arithmetic problems, spelling word acquisition, and observation of disruptive and on-task behavior. Positive effects were found in all the target behaviors. Results suggest that methylphenidate effects on classroom behavior may be accompanied by improvement in academic achievement for some hyperactive children.

Has anyone seen positive results in school grades after using methylphenidate?

One study looked at methylphenidate and school grades in children with attention deficit disorder without hyperactivity[13]. School grades were obtained for the grading periods before and after the treatment period. Eight of the ten children showed grade improvement on at least three of the five courses evaluated (science, reading, spelling, mathematics, and social studies) during the methylphenidate use period compared with the non-methylphenidate period. Teachers' and parents' rating scales indicated that eight of the ten children performed more effectively during the methylphenidate use period than during the earlier and later periods when methylphenidate was not used.

What about reading?

Effects on reading performance has also been researched [22]. Working with children with reading disorders, ages 7 to 13, it was found that reading skills improved when the children were using methylphenidate. The researchers pointed out that the effects of methylphenidate on academic achievement probably result from behavioral changes. Significant improvement in reading skills with students taking methylphenidate were also reported [14][15].

Does it help adults with hyperactive behavior?

Results from the use of methylphenidate by adults vary according to different studies. One study found no significant benefit from methylphenidate for these adults [16]. Only 25% of the sample of 26 adults benefited from this treatment. Another study reported the effects of methylphenidate in a

group of 37 adult patients with attention deficit disorder, undifferentiated type [17].

They found significant differences between those who received methylphenidate for treatment and those who received a placebo. A placebo is a pill that looks like medication but has nothing in it. Fifty-seven percent of those who received methylphenidate showed moderate to marked improvement in attention difficulties, motor overactivity, mood, reduced mood swings, and impulsivity. The improvement shown by those who received a placebo was minimal. Researchers suggested that the diagnosis of attention deficit disorder, undifferentiated type, should be considered in patients with prominent signs and symptoms of restlessness, moodiness, hot temper, and impulsivity. The diagnosis would not include individuals who show signs of schizophrenia, major mood disorders (severe depression), borderline or schizotypal personality disorder.

So far, the results sound very positive. Can you tell me about some of the documented side effects with methylphenidate?

Some of the documented side effects for Ritalin include:

- appetite suppression and weight loss;
- sleep disturbances;
- stomachaches and headaches;
- lethargy;
- possible tics (or Tourette syndrome) [30].

It should be noted that these side effects are not common in all children. Close monitoring by the physican will help in proper medication management.

Have there been any unusual negative results from using methylphenidate cited in the literature?

A study reported the case of a ten-year-old boy with severe hyperactivity. The child was admitted for inpatient treatment [20]. He had a five-year history of hyperactivity, poor attention, aggressive tendencies, intermittent explosive outburst, mood swings, stealing tendencies, and oppositional behavior. After evaluation he received the diagnosis of attention deficit disorder with hyperactivity along with unsocialized aggressive conduct disorder and started treatment with methylphenidate. Positive results were observed in the first week.

Between days 14 and 20 he developed rapid and pressured speech, flight of ideas, severe hyperactivity, belligerence, alternating with euphoric and expansive moods, inappropriate laughter, and decreased sleep. On day 24 methylphenidate was discontinued with behavioral improvements over the next 48 hours. Additional treatment resulted in full remission of symptoms along with a decrease in levels of hyperactivity and attention problems.

A second study reported the case of a six-year-old boy with attention deficit disorder with hyperactivity who developed a psychotic disturbance in conjunction with methylphenidate treatment [21]. The patient started treatment with a gradually increased dose of methylphenidate until improvement in behavior was achieved, which was at 20 mg. in the morning and 10 mg. at noon. After 2 and 1/2 months in treatment, dosage was reduced to 10 mg. in the morning and 10 at noon. After four months in treatment, standard form was replaced with sustained released form (20 SR) in the morning. After six months of treatment, the mother reported that her son was becoming more aggressive and more difficult to manage. The

methylphenidate treatment was terminated, the behavioral disorganization and psychosis were resolved completely and the child returned to his former attentional problems and hyperactivity. The authors stated that this psychological disturbance certainly seemed to have been associated with the methylphenidate treatment.

FINAL WORDS

If careful diagnosis of ADHD is made and the medication is properly monitored by a physician with knowledge of ADHD symptoms, the chance to get positive results from this type of treatment increases. There are many other factors to take into consideration in predicting the efficacy of Ritalin. Some of these factors are related to the adequate dosage and to the regularity of intake of the pills. Inadequate dosage and/or irregular intake of the medication result in poor or negative outcomes.

Even if Ritalin produces positive effects, these effects will only last as long as the medication is in the child's blood system. Once the medication wears off, the symptoms return. This is why behavior management and parent education or counseling has to be provided along with medication treatment.

At some point we are going to stop the medication. If behavior management is provided effectively, significant improvement will be shown even without medication. A study showed that positive interaction between the ADHD child and the mother increased the potential benefits of the medication [31].

Medication is not the solution for all of the problems caused by ADHD. However, medication may facilitate the application of behavior management to improve control over ADHD symptoms. Medication may provide a child with ADHD the opportunity to know that there are other behaviors that he/she can perform with an increase in positive feedback from others.

If you have any additional questions or concerns regarding medical issues, please contact your family physician.

If you have additional questions or concerns regarding educational and academic issues, please contact your school psychologist, school social worker, or school counselor.

If you have additional questions or concerns regarding parent support groups or general issues associated with ADHD, please contact your local Chapter of Children with Attention Deficit Disorder, CH. A.D.D. (CHADD National can be reached by calling 305-587-3700).

REFERENCES

1- DuPaul, G. and Barkley, R. (1990). Medication Therapy. In R. Barkley (Ed.), *Attention Deficit Hyperactivity Disorder. A handbook for diagnosis and treatment.* New York: The Guilford Press.

2- *Physician's Desk Reference*, 46ed., (1992). N.J. Medical Economics Company.

3- Farley, D. (1989). *Helping Children with Attention. Disorder.* Food and Drug Administration, Consumers Magazine. February 1989, pp.10-15.

4- Ullman, R. K., and Sleator, E. K. (1986). Responders, nonresponders, and placebo responders among children with attention deficit disorder. *Clinical Pediatrics, 25 (12)*, 547-551.

5- Taylor, E., Schachar, R., Thorley, G., Wieselberg, H., Everitt, B., and Rutter, M. (1987). Which boys respond to stimulant medication? A controlled trial of methylphenidate in boys with disruptive behavior. *Psychological Medicine, 17*, 121-143.

6- Brown, R., Wynne, M., and Slimer, L. (1984). Attention deficit disorder and the effects of methylphenidate on attentional, behavioral, and cardiovascular functioning. *Journal of Clinical Psychiatry, 45(11)*, 473-476.

7- Rapport, M., Stoner, G., DuPaul, G., Kelly, K., Tucker, S., and Schoeler, T. (1988). Attention deficit disorder and methylphenidate: A multiple analysis of dose-response on children's impulsivity across settings. *Journal of the American Academy of Child and Adolescent Psychiatry, 27(1),* 60-69.

8- Schachar, R., Taylor, E., Wieselberg, M., Thorley, G., and Retter, M. (1987). Changes in family functioning and relationships in children who respond to methylphenidate. *Journal of the American Academy of Child and Adolescent Psychiatry, 26(5),* 728-732.

9- Barkley, R. and Cunningham, C. (1979). The effects of methylphenidate on the mother-child interactions of hyperactive children. *Archives of General Psychiatry, 36,* 201-208.

10- Pelham, W. Jr., Sturges, J., Hoza, J., Schmidt, C., Bijlsma, J., Milich, R., and Moorer, S. (1987). Sustained release and standard methylphenidate effects on cognitive and social behavior in children with attention deficit disorder. *Pediatrics, 80(4),* 491-500.

11- Kupietz, S., Winsberg, B., Richardson, E., Maitinsky, S., and Mendell, N. (1988). Effects of methylphenidate dosage in hyperactive reading-disabled children: I. Behavior and cognitive performance effects. *Journal of the American Academy of Child and Adolescent Psychiatry, 27(1),* 70-77.

12- Pelham, W., Bender, M., Caddell, J., Booth, S., and Moorer, S. (1985). The dose-response effects of methylphenidate on classroom academic and social behavior in children with attention deficit disorder. *Archives of General Psychiatry, 42*, 948-952.

13- Famularo, R., and Fenton, T. (1987). The effects of methylphenidate on school grades in children with attention deficit disorder without hyperactivity: A preliminary report. *Journal of Clinical Psychiatry, 48(3)*, 112-114.

14- Weiss, G., Minde, K., Douglas, V., et al. (1971). Comparison of effects of chlorpromazine, dextroamphetamine, and methylphenidate on behavior and intellectual functioning of hyperactive children. *Canadian Medical Association Journal, 104*, 20-25.

15- Dykman, R., Ackerman, P., and McCray, D. (1980). Effects of methylphenidate on selective and saturated attention in hyperactive, reading-disabled, and presumably attention-deficit-disordered boys. *Journal of Nervous and Mental Diseases, 168*, 745-752.

16- Mattes, J., Boswell, L., and Oliver, H. (1984). Methylphenidate effects on symptoms of attention deficit disorder in adults. *Archives of General Psychiatry, 41(1)*, 1059-1063.

17- Wender, P., Reimherr, F., Wood, D., and Ward, M. (1985). A controlled study of methylphenidate in the treatment of attention deficit disorder, residual type, in adults. *American Journal of Psychiatry, 142(5),* 547-552.

18- Birmaher, B., Quintana, H., and Greenhill, L. (1988). Methylphenidate treatment of hyperactive autistic children. *Journal of the American Academy of Child and Adolescent Psychiatry, 27(2),* 248-251.

19- Strayhorn, J., Jr., Rapp, N., Donina, W., and Strain, P. (1988). Randomized trial of methylphenidate for an autistic child. *Journal of the American Academy of Child and Adolescent Psychiatry, 27(2),* 244- 247.

20- Koehler-Troy, C., Strober, M., and Malenbaum, R. (1986). Methylphenidate-induced mania in a prepuberal child. *Journal of Clinical Psychiatry, 47,* 566-567.

21- Bloom, A., Russell, L., Weisskopf, B., and Blackerby, J. (1988). Methylphenidate-induced delusional disorder in a child with attention deficit disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 27(1).* 88-89.

22- Richardson, E., Kupietz, S., Winsberg, B., Maitinsky, S.,and Mendell, N. (1988). Effects of methylphenidate dosage in hyperactive reading-disabled children: II. Reading achievement. *Journal of the American Academy of Child and Adolescent Psychiatry, 27(1),* 78- 87.

23- Ullman,R., and Sleator, E. (1985). Attention deficit disorder children with or without hyperactivity. Which behaviors are helped with stimulants ? *Clinical Pediatrics, 24(10)*, 547-551.

24- Abikoff, H., and Gittelman, R. (1985). The normalizing effects of methylphenidate on the classroom behavior of ADHD children. *Journal of Abnormal Child Psychology, 13(1)*, 33-44.

25- Barkley,R., Karlson, J., Strzelecki, E., and Murphy, J. (1984). Effect of age and Ritalin dosage in the mother-child interactions of hyperactive children. *Journal of Consulting and Clinical Psychology, 52*, 750-758.

26- Barkley , R. (1988). The effects of methylphenidate in the interactions of preschool ADHD children with their mothers. *Journal of the American Academy of Child and Adolescent Psychiatry, 27(3)*, 336-341.

27- Pelham, W. Jr., Walker, J., Sturges, J., and Hoza, J. (1989). Comparative effects of methylphenidate on ADD girls and ADD boys. *Journal of the American Academic of Child and Adolescent Psychiatry, 28(5)*, 773-776.

28- Whalen, C., Henker, B., Castro, J., and Granger, D. (1987). Peer perceptions of hyperactivity and medication effects. *Child Development, 58(3)*, 816-828.

29- Schmidt, K., and Freidson, S. (1990). Atypical outcome in attention deficit hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 29(4),* 566-570.

30- Copeland, E. D. (1991). *Medications for attention disorders (ADHD/ADD) and related medical problems.* Atlanta: SPI Press.

31- Barkley, R., and Cunningham, C. (1980). The parent-child interactions of hyperactive children and their modification by stimulant drugs. In R. Knights and D. Bakker (Eds.), *Treatment of hyperactive and learning disabled children.* Baltimore: University Park Press.

NOTES

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